

Client's ref.: 87-188
File: 0492-2480Q/SUE/Final

WHAT IS CLAIMED IS:

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0492-2480Q

1. An Ethernet switch comprising:
a plurality of network ports, for receiving or
delivering network packets;
a first memory device, for storing the source
address and associated messages of said network packets;
a second memory device, for storing the data of the
network packets received by the network ports;
a first memory control device, connected to said
first memory device, for controlling the read and write of
said first memory device;
a second memory control devices, connected to said
second memory device, for controlling the read and write of
said second memory device;
an switch device, connected to said plural network
ports and said first memory control device, for creating a
source address and associated messages of said network
ports, creating a destination address and associated
messages of said network port for said network packets in
accordance with the contents of said first memory device,
and managing the contents of said first memory device; and
a second memory management device, connected to said
plural network ports and said second memory control device,
for managing the contents of said second memory device.

2. The Ethernet switch of Claim 1, wherein said network
ports comprise a first network port and a second network
port.

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1 3. The Ethernet switch of Claim 1, wherein said network
2 ports comprise media independent interfaces, for connecting
3 to local area networks (LAN) of various specifications.

1 4. The Ethernet switch of Claim 2, wherein said first
2 network port and said second network port comprise media
3 independent interfaces, for connecting to local area network
4 (LAN) of various specifications.

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1 5. The Ethernet switch of Claim 1, wherein said switch
2 device comprises an initiation module, for resetting the
3 contents of said first memory device.

1 6. The Ethernet switch of Claim 1, wherein said switch
2 device comprises an aging module, for attenuating the expiry
3 of the contents of said first memory device.

1 7. The Ethernet switch of Claim 1, wherein said switch
2 device comprises
3 a packet switch routing learning module and a packet
4 switch routing selecting module;
5 wherein, said packet switch routing learning module
6 searches for the contents of said first memory device in
7 accordance with the source address of said network packets,
8 for creating or updating an index for recording the source
9 addresses of said network packets and their links with said
10 plural network ports; and
11 said packet switch routing selecting module searches
12 for the contents of said first memory device in accordance
13 with the destination addresses of said network packets, for

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14 obtaining said corresponding network ports, and for
15 transporting or filtering said network packets.

1 8. The Ethernet switch of Claim 1, wherein said switch
2 device comprises packet switch processing arbitrating
3 module, for arbitrating the network packet switch processing
4 order of said network packets received from said plural
5 network ports.

9 1 9. A method of switching network packet for the
2 Ethernet switch, comprising:

3 providing a routing table made up of plural indices,
4 for recording the source address of said packet and the
5 messages associated with said network port;

6 providing a route learning device, responding to the
7 source address of said packet and the content of said
8 routing table, for creating a new index of said routing
9 table or updating an index of said routing table; and

10 providing a route selecting device, responding to the
11 destination address of said packet and the content of said
12 routing table, for determining the link between the
13 destination of said packet and said network port.

1 10. The method of switching packet for the Ethernet
2 switch of Claim 9 further comprising:

3 providing a route resetting device, for resetting
4 the content of said routing table.

1 11. The method of switching packet for the Ethernet
2 switch of Claim 9 further comprising:

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3 providing a routing table index expiry attenuating
4 device, for attenuating the content of said routing table.

1 12. The method of switching packet for the Ethernet
2 switch of Claim 9 further comprising:

3 providing a route learning and selection
4 arbitrating device, for arbitrating the network packet
5 switch processing order of said network packet received from
6 said plural network port.

1 13. The method of switching packet for the Ethernet
2 switch of Claim 9 further comprising:

3 providing an age index, a source port number, an
4 address flag, and an ID pattern in said index.

1 14. The method of switching packet for the Ethernet
2 switch of Claim 9, wherein said route learning device
3 performs the following steps upon creating an index of said
4 routing table or updating an index of said routing table:

5 a) set a address flag as the first address flag, set
6 a search index address as the first index address, set an ID
7 pattern as the first ID pattern, set the source network port
8 as the first network port, and set an effective age index
9 range as the first age index range;

10 b) read said index in accordance with the first
11 index address on said routing table;

12 c) compare the age index of said index to determine
13 whether it is within the range of the first age index;

14 d) compare the source network port number, address
15 flag, and ID pattern of said index, to determine whether
16 they are identical to the first network port, the first

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17 address flag, and the first ID pattern; and
18 e) determine the source port number of said index
19 and its relation with the source address of said network
20 packet, in response to the outcomes of steps (c) and (d).

1 15. The method of switching packet for the Ethernet
2 switch of Claim 9, wherein said route selecting device
3 performs the following steps upon determining the link
4 between the destination of said packet and said network
5 port:

6 a) set a address flag as the second address flag,
7 set a search index address as the second index address, set
8 an ID pattern as the second ID pattern, set the source
9 network port as the second network port, and set an
10 effective age index range as the second age index range;

11 b) read said index in accordance with the second
12 index address on said routing table;

13 c) compare the age index of said index to determine
14 whether it is within the range of the second age index;

15 d) compare the source network port number, address
16 flag, and ID pattern of said index, to determine whether
17 they are identical to the second network port, the second
18 address flag, and the second ID pattern; and

19 e) determine the source port number of said index
20 and its relation with the destination address of said
21 network packet, in response to the outcomes of steps (c) and
22 (d).